App. No. 10/530790
Office Action Dated August 19, 2009

REMARKS

Favorable reconsideration is requested in view of the following remarks. Claims 1-8 and 12-16 remain pending in the application.

Claim rejections - 35 U.S.C. § 103

Claims 1-8 and 12-16 are rejected as unpatentable over Mori et al. (Chem. Pharm. Bull., 1983) in view of Kosaka (US 2002/0037591). Applicants respectfully traverse the rejection.

The rejection contends that Kosaka teaches the equivalence of pyrocatechol violet and Qn-Ph, and therefore, the substitution of the known indicators is proper. However, the two references use their indicators to bind completely different components in completely different ways in completely different environments to measure completely different analytes. The differences between Mori and Kosaka are summarized in the table below.

	Mori	Kosaka
Analyte	Creatinine	Protein
Metal	Pd	In
Indicator	QnPh	Pyrocatechol violet, QnPh
pH	5.5	2.2-2.7
Reaction Condition	60°C, 45 min.	37°C, 10 min.
Reaction Mechanism	Competitive binding	Non-competitive binding

In particular, Mori teaches a method for measuring creatinine (abstract), with the use of QnPh in a buffer solution with a pH of 5.5 (page 1389, first paragraph under Experiment heading) and a reaction time of 45 minutes at a temperature of 60°C. Mori teaches that upon addition of creatinine to the Qn.Ph.-Pd(II) complex solution, the absorption peak at 615 nm was lowered (page 1390), thereby indicating a competitive binding to Pd(II) of creatinine and QnPh for the detection of creatinine.

On the other hand, Kosaka teaches a method for measuring protein (page 1, paragraph [0014]), with the use of pyrocatechol violet or QnPh in a buffer solution with a pH of 2.2-2.7 and a reaction time of 10 minutes at a temperature of 37°C. Kosaka teaches a shift in the wavelength due to the binding of an analyte protein to the QnPh-In complex (paragraph [0025] of Kosaka),

thereby indicating that the protein binds to the QnPh-In complex itself, and is not a competitive binding between the protein and In with QnPh for the detection of protein. Kosaka merely indicates that pyrocatechol and QnPh are interchangeable within their detection system, and is far from teaching or suggesting that they are interchangeable in Mori's system.

The rejection further contends that it would have been obvious to one of ordinary skill in the art to substitute the QnPh of Mori with the pyrocatechol violet of Kosaka in order to provide a well known indicator capable of forming a complex with a transition metal ion that binds to an analyte to shift the wavelength and be able to detect trace amounts of the analyte. However, the binding mechanism of the indicators is completely different in the detection systems of the two references. That is, in Mori, the indicator does not bind to the analyte, but rather, the analyte and the indicator compete for binding to Pd(II). On the other hand, in Kosaka, the indicator forms a complex with In so that the indicator-In complex binds to the analyte. As a result, the measured component and the measured parameter are completely different in the two references. That is, in Mori, the reduction in the absorption peak is measured to measure the decrease in the amount of the indicator-Pd(II) complex. In Kosaka, a shift in the wavelength is measured to measure the binding of the analyte to the indicator-In complex. Thus, contrary to the rejection's position, the indicators used in the two references are not functioning in such a way that their interchange from one detection system to the other would represent a predictable application of the known function of the indicator. Accordingly, claim 1 and its dependent claims are patentable over the references.

In view of the above, favorable reconsideration in the form of a notice of allowance is requested. Any questions or concerns regarding this communication can be directed to the attorney-of-record, Douglas P. Mueller, Reg. No. 30,300, at (612) 455.3804.

Respectfully submitted,

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